AEG

POWER
SOLUTIONS

PROTECT D

Single phase in / out UPS system

1000 – 10000 VA power supply
with integrated batteries

VFI

Efficient high-performance UPS for rack use
With a untity power factor (VA=W), Protect D series exceeds the power of conventional UPS systems by 11%. highest effiency, increased up to top level in class, during normal operation as well as in the energy-efficient ECO operating modes.

Compact and flexible
The height of the UPS electronics and battery together is only 2 U. The autonomy times can be increased with additional battery packs; connected battery packs are automatically detected. Our advanced battery charging technology allows for short charging times and battery-preserving charging characteristics at the same time.

A real-time event logger ensures careful observation and analysis of events as they occur. In addition, a regular automated battery test can be planned.

Typical applications
- IT rooms and other rack applications
- Industry 4.0
- Edge Computing
- IoT

FEATURES

- VFI topology (online / double conversion) protects against all network problems
- Top class performance thanks to power factor 1, enhanced available performance by approx. 11%.
- Top Effiency, Increased efficiency through the ECO mode
- Extremely wide input voltage window of 110 VAC to 300 VAC without stress on the internal battery system and with a stable output voltage
- Advanced battery charging technology for maximum durability of the battery
- Additional battery packs for easy scaling of the autonomy times (Up to 6 EBP)
- MODBUS TCPIP included through RJ45
- Extension slot for communication cards; communication in parallel is possible through the RS232 / USB interface and SNMP
- Low height (2 U) including integrated batteries
- Switchable UPS outputs for load shedding
- Display of the UPS parameters on a graphic LCD, direct configuration is possible with the control panel
- Freely programmable input and output potential-free contact plus emergency shutdown contact

BENEFITS

- Highest performance in class: Power factor 1 and top effiency.
- New “S”-version with higher charging power for extended autonomy times.
- Easy battery replacement through front.
- Integrated MODBUS TCP-IP communication protocol.
- Several interfaces (RS232 /USB/ Slot/ EPO) as well as a potential free contact within the series ensure an outstanding communication capacity.
- Multilingual graphic screen is very easy to read thanks to its large format.
- The UPS can be directly administered with the control panel.
- May also be used as a frequency converter.
- Usable as rack or tower version

Specifications

PROTECT D 1000, D 1500, D 2000, D 2000S, D 3000, D 3000S

CLASSIFICATION VFI ACC. TO IEC 62040-3	D 1000	D 1500	D 2000	D 2000S	D 3000	D 3000S
Power type rating	1000 VA	1500 VA	2000 VA	2000 VA	3000 VA	3000 VA
	1000 W	1500 W	2000 W	2000 VA	3000 W	3000 W
Part number UPS	3000 4620	3000 4621	3000 4622	3000 4628	3000 4623	3000 4629
Part number battery pack	3000 4624	3000 4624	3000 4625	3000 4625	3000 4625	3000 4625
UPS INPUT						
Input voltage	208 VAC / 220 VAC / 230 VAC (default) / 240 VAC					
Voltage range without battery mode (load dependent)	160 – 300 VAC 100% load, 110 – 160V derating to 50% load linearly					
Frequency (auto selection)	50 Hz / 60 Hz					
Input power factor / (THDi)	≥0.99 (THDi < 5 %)					
Current consumption at nominal load (max.)	5 A	7 A	9 A	9 A	14 A	14 A
UPS OUTPUT						
Rated output voltage (adjustable)	208 VAC / 220 VAC / 230 VAC (default) / 240 VAC					
Output power factor	up to 1					
Frequency in battery / frequency converter mode	50 Hz / 60 Hz ±0.25 Hz					
Nominal output current (at 230 VAC)	4.3 A	6.5 A	8.7 A	8.7 A	13 A	13 A
Transfer time at mains outage	0 ms (without interruption)					
Voltage waveform	Sinusoidal, distortion THD <3 %					
Overload response (double conversion mode)	<105 % continous / 105 % – 125 % for 5 minutes / 125 % – 150 % for 30 seconds / > 150% for 500 ms					
Overload response (battery mode)	<105 % continous / 105 % – 125 % for 5 minutes / 125 % – 150 % for 30 seconds					
Crest factor	3 : 1					
Short circuit response	Inverter limits the current within 100ms					
BATTERY						
Type	Sealed, maintenance free, integrated, hot swappable					
Rated voltage (linked)	36 VDC	36 VDC	72 VDC	72 VDC	72 VDC	72 VDC
Charging current	1.5 A	1.5 A	1.5 A	2/4/6/8 A	1.5 A	2/4/6/8 A
Battery management	Temperature compensated with discharge protection, automatic battery test					
External Battery Pack	Up to 6 x 3000 4624		Up to 6 x 3000 4625			
TYPICAL BACKUP TIME @ 100% / 80% LOAD (MINUTES)*						
PROTECT D LCD+	6.7 / 9.2	3.5 / 5.1	6.9 / 9.6	NA	4 / 5.3	NA
PROTECT D LCD+ & EBP	29.1 / 38.5	16.9 / 23.1	30.1 / 40	17.7 / 23.8	17.6 / 23.9	10 / 13.8
PROTECT D LCD+ & 2 x EBP	55 / 71.8	33 / 44.3	56.9 / 74.3	43.3 / 56.9	34.4 / 45.7	25.8 / 34.6
PROTECT D LCD+ & 3 x EBP	82.2 / 106.5	50.2 / 66.7	84.9 / 110.2	70.8 / 92.1	52.2 / 68.7	43.2 / 57.1
PROTECT D LCD+ & 4 x EBP	110.2 / 142.2	68 / 89.8	113.8 / 147.1	99.2 / 128.5	70.6 / 92.4	61.3 / 80.4
PROTECT D LCD+ & 5 x EBP	138.8 / 178.8	86.2 / 113.4	143.3 / 184.8	128.4 / 165.8	89.5 / 116.6	80 / 104.4
PROTECT D LCD+ & 6 x EBP	167.9 / 216	104.8 / 137.4	173.3 / 223.3	158.2 / 204	108.7 / 141.3	99.1 / 128.9
COMMUNICATION						
Interfaces (dual monitoring)	RS232, USB, communication slot (can be used in parallel with RS232 / USB), Input contact for emergency shutdown, programmable potential free contact					
Communication protocol	Included MODBUS TCP-IP (RJ45)					
Shutdown software	CompuWatch incl. 5 network licenses for all common OS (e.g. Windows, Linux, Mac, Unix, Sun etc.)					
Failure indication (acoustic / visual)	Failure indicators (acoustic /visual), detailed indication via LCD display (alarms: at mains failure, overload, battery charging, battery replacement, fan fault, event data log – with clear text display incl. date and time history)					
GENERAL DATA						
Efficiency (ECO+ mode)	96 %	97 %	97 %	97 %	97 %	97 %
Efficiency at nominal load (double conversion mode)	89 %	89 %	93 %	93 %	93 %	93 %
Audible noise (1 m distance)	<45 dB(A)	<45 dB(A)	<50 dB(A)	<50 dB(A)	<50 dB(A)	<50 dB(A)
Operating temperature range	0 – 40 °C					
Humidity	0 – 95 % (without condensation)					
Operation altitude	Up to 3000 m at nominal load					
EMC conformity	EN 62040-2 Class C2, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5					
Product safety	IEC 62040-1					
Number of outputs (switchable) automatically locked	1 main outlet group (with 4 x IEC C13) and 1 programmable outlet group (with 4 x IEC C13)				1 main outlet group (1 x IEC C19 + 4 x IEC C13) + 1 programmable outlet group (with 4 x IEC C13)	
Dimensions approx. W x H x D (mm) UPS	438 x 85.5 (2U) x 445		438 x 85.5 (2U) x 600			
Dimensions approx. W x H x D (mm) battery	438 x 85.5 (2U) x 445		438 x 85.5 (2U) x 600			
Weight approx. UPS incl. integrated battery	16.3 kg	17.8 kg	25.3 kg	12.6 kg (no batt.)	28.2 kg	13 kg (no batt.)
Weight approx. battery extension unit	24.6 kg	24.6 kg	41.9 kg	41.9 kg	41.9 kg	41.9 kg
Shipment	Mains input cord (EU), communications USB cable, operating & safety instructions, 1 x IEC device connection cable, rack mounting brackets, tower base feet					
Conformity	CE					

*Backup times are approximate and may vary with equipment, configuration, battery age, temperature, etc.

PROTECT D 6000 / 10000

Top performance in rack format

Protect D 6000 and D 10000 compliment the range of the successful Protect D series. With Protect D 10000, a power level of 10 kVA in rack design is available for the first time. Protect D 6000 and Protect D 10000 have the same advantages and characteristics as the smaller models, including the higher power factor of 1.

Compact housing dimensions
Thanks to their compact design, the devices can also be used in IT cabinets with a depth of only 800 mm. Protect D 6000 and 10000 including battery, connection unit with manual bypass fits within 5 standard height units (2U UPS + 3U battery).

Flexible and maintenance friendly
To increase power or to be able to serve the demand for active redundancy, Protect D 6000 and Protect D 10000 are prepared for parallel operation of up to 3 units. In order to ease maintenance work, a manual bypass is already integrated into the removable connection unit.

The connection unit hosts 4 x IEC 320 C13 and 2 x IEC 320 C19 outputs. It can be flexibly mounted on the front or at the back of the rack cabinet.

FEATURES

- Suitable for IT cabinets with a depth of 800 mm
- High power density in a compact housing
- Very easy assembly through connection unit with manual maintance bypass switch
- Parallel operation of up to 3 units
- Output power factor of 1
- Usable as rack or tower version

Specifications

PROTECT D 6000, D 10000		
CLASSIFICATION VFI ACC. TO IEC 62040-3	**D 6000**	**D 10000**
Power type rating (Ready for redundant or increased performance parallel operation)	6000 VA	10000 VA
	6000 W	10000 W
Part number UPS	600 002 5604	600 002 5605
Part number for additional battery pack	600 002 4439	600 002 4440
UPS INPUT		
Input voltage	208 VAC / 220 VAC / 230 VAC / 240 VAC	
Voltage range without battery mode	176 VAC (120 VAC to 50 % utilization) – 276 VAC	
Frequency (auto selection)	45-55 Hz / 54-66 Hz (extendable to 40–70 Hz when load < 60%)	
Input power factor / (THDi)	≥0.99 (THDi <5 %)	
Current consumption at nominal load (max.)	32 A	50 A
UPS OUTPUT		
Rated output voltage (adjustable)	208 VAC / 220 VAC / 230 VAC (default) / 240 VAC ±1%	
Output power factor	up to 1	
Frequency in battery / frequency converter mode	50 Hz / 60 Hz ±0.5 %	
Output current (at 230 VAC)	26 A	43.4 A
Transfer time at mains outage	0 ms (without interruption)	
Voltage waveform	Pure sine wave	
Overload response (double conversion mode)	<125 % for 10 min. / 130 – 150 % for 30 s, > 150 % for 500 ms	
Crest factor	3 : 1	
Short circuit response	Short circuit proof (3 x I_N for 200 ms)	
BATTERY		
Type	Sealed, maintenance free, integrated, hot swappable	
Rated voltage (linked)	192 VDC	240 VDC
Battery management	Temperature compensated with discharge protection, automatic battery test (programmable)	
TYPICAL BACKUP TIME @ 100% LOAD (MINUTES)*		
PROTECT D LCD & EBP (x1/x2/x3/x4/x5)	7.5 / 25.9 / 56.9 / 95.7 / 140.6	5.1 / 21.7 / 45.0 / 63.8 / 104.4
COMMUNICATION		
Interfaces (dual monitoring)	RS232, USB, communication slot (can be used in parallel with RS232 / USB), input contact for emergency shutdown, programmable potential free contact	
Shutdown software	CompuWatch incl. 5 network licenses for all common OS (e.g. Windows, Linux, Mac, Unix, Sun etc.)	
Failure indicators (acoustic / visual)	Detailed indication via LCD display (alarms: at mains failure, overload, battery charging,battery replacement, fan fault, event data log – with clear text display incl. date and time history)	
GENERAL DATA		
Efficiency (ECO mode)	>98 %	>98 %
Efficiency at nominal load (double conversion mode)	>95 %	>95 %
Audible noise (1 m distance)	<55 dB(A)	<60 dB(A)
Operating temperature range	0° – 40 °C	
Humidity	0 – 95 % (without condensation)	
Operation altitude	Up to 1000 m at nominal load	
EMC conformity	EN 62040-2 Class C2	
Product safety	EN 62040-1	
AC input	Permanent connection via terminals. Power PDU from UPS input and output connectors with integrated manual bypass switch. Cable entry possible from top, bottom or rear.	
Number of outputs	UPS: 1 x fixed connection on terminal block + 2 x IEC 320 C13, Connection Unit: 4 x IEC 320 C13 + 2 x IEC 320 C19	
Dimensions approx. W x H x D (mm)	482.6 (19") x 86 (2U) x 573	
Dimensions approx. W x H x D (mm) battery extension unit	482.6 (19") x 129 (3 U) x 595	
Weight approx. without batteries	13 kg	14.7 kg
Weight approx. with batteries	58 kg	75 kg
Weight approx. battery extension unit	44.5 kg	63 kg
Shipment	USB cable, parallel cable, operating & safety instructions, rack mounting brackets, tower base feet	
Conformity	CE	

*Backup times are approximate and may vary with equipment, configuration, battery age, temperature, etc.

AEG Power Solutions

Approach your local AEG Power Solutions representative for further support. Contact details can be found on: www.aegps.com